

Re. point II

IAP9 Rec'd PCT/PTO 07 DEC 2005

Remarks relating to the claimed priority

The object of the claimed priority with the number DE 103 26 428.0 does not match the object of this application. The applicant is requested to correct the claimed priority if necessary.

Re. Point V

Reasoned statement with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statements

1. Reference is made to the following documents:

- D1: MICHAEL REUL: "Paper Machine Optimization" PAPTAC, [Online] 31. December 2001 (2001-12-31), XPO02299971 MONTREAL, found on the Internet: URL: <http://www.topcontrol.com/pdf/papermac hineoptimization.pdf> [found on 2004-10-08]
- D2: RUEL MICHAEL: "Process Optimization" ISA PROCEEDINGS 2001, [Online] 19 September 2001 (2001-09-19), XP002299972 HOUSTON found on the Internet: URL: <http://www.topcontrol.com/pdf/processoptimizat ion.pdf> [found on 2004-1008]
- D3: DE 100 11 607 A (Siemens AG) 20 September 2001 (2001-09-20)
- D4: 02/29501 A (HOFFMAN GROUP) 11 April 2002 (2002-04-11)
- D5: DE 38 26 097 A (ORTOPEDIA GMBH) 8 February 1990 (1990-02-08)

2. The object of claim 1 of the present application claims a method for optimizing the capacity of an industrial process with the following steps:

- **System analysis:** for example by determining the system parameters by excitation of the system (changing system states; operating conditions)
- **Detection of system bottlenecks** (from the response behavior, such as control reserves for example)

For the person skilled in the art of process and control technology this described sequence represents the conventional sequence which he uses to carry out his daily work. The application of this generally known method of operation to installations for executing industrial processes is obvious to the person skilled in the art. The application thus does not fulfill the requirements of Article 33(1) PCT because the object of claim 1 is not based on an inventive step in the sense Article 33(3).

3. The present application does not fulfill the requirements of Article 33(1) PCT because the object of claim 1 is not based on an inventive step in the sense Article 33(3).

Document D1 is viewed as the closest prior art in relation to the object of claim 1. It discloses (the references in brackets relate to this document):

Methods of increasing the capacity of an installation for carrying out an industrial process, with the following steps: (Page 1 - "Paper Machine Optimizing")

Determining process variables relevant for the capacity of the installation (Page 1 - "analysis of key variables")

Recording the process variables under changing operating conditions of the installation, (Page 1 - "benchmark the machine")

from which the object of the claim 1 differs through:

Determining a smallest control reserve of the control loops of the installation on the basis of the process variables recorded

Document D1 discloses the control loop analysis (Page 1). For the person skilled in the art the inclusion and determination of a control loop parameter such as the control reserve in connection with the detection of system bottlenecks is obvious and does not require the exercising of an inventive step.

4. The dependent claims 2-9 do not contain any features, which in combination with the features of any claim to which they relate, meet the requirements of the PCT in relation to inventive step, see document D1 and the corresponding points in the text referred to in the search report:

4.1 Claim 2 - Define a desired capacity increase of the installation (Page 1 - as part of the plan), determine the control reserve in the control loops of the installation necessary for the desired capacity increase, determining the control loops with a control reserve which is too small for the desired capacity increase (Page 2 - PID tuning). The fact that the "control loop tuning" is undertaken at the control loops which were detected in the analysis of bottlenecks is obvious to the person skilled in the art and does not require the exercising of an inventive step.

4.2 Claim 3 - technical and/or technological investigation of the control loops with a control reserve which is too small (Page 1 - measure performance; use optimization software) and formulation of measures for establishing control reserves needed in each case by relieving the load on the relevant control loops and/or by replacing components in the relevant control loops by higher-capacity components (Page 2 links - Replacement, Configuring, Modifying, Tuning)

4.3 Claim 4 - Performing a technical and/or commercial evaluation of the measures (Page 1, right - performance comparison/benchmark and economics; Page 2, right - return of investment)

4.4 Claim 5 - for the determination of the relevant process variables a core process is defined (Page 1 - most critical loops) and interfaces of the core process with ancillary processes surrounding it are investigated for an effect

relationship to the capacity of process variables representing the installation (Page 2 - implicit for "loop decoupling").

4.5 Claim 6 - is disclosed in D1 (whole document - paper machine)

4.6 Claim 7 - identifies an implicit feature of paper machines (e.g. Voith PM2 - '1600m/min) which is also disclosed in D1 (Page 1 - speed).

4.7 Claim 8 - designates a non-technical feature which cannot be included for evaluation of the novelty or inventive step respectively. For the sake of completeness however this claim is also disclosed in D1 (Page 1 - external resources, consultant).

4.8 Claim 9 - the choice of the filter and recording frequency of the process variables does not require the person skilled in the art to exercise any inventive step, but instead is determined by the circumstances (e.g. in accordance with the sampling theorem).